

KANAYEV, A.F.; CHEKOTILLO, A.M.; KOLOSKOV, P.I., doktor geogr. nauk, prof.,
otv. red.; KUDASHEV, A.I., red. izd-va; SIMKINA, Ye.N., tekhn. red.

[Cold storage installations made of ice and their use] Lediane sklady
i ikh ispol'zovanie. Moskva, Izd-vo Akad. nauk SSSR, 1952. 110 p.
(Icehouses) (Cold storage)

CHEKOTILLO, A. M.

"On the Ice Layers of Alaska," Merslotovedenoye, Vol. 1, No.2, pp. 111-118, 1946

U-3213, 3 Apr 53

CHEKOTILLO, A. M.

"On the Ice Layers of Aläska," Merzlotovedeniye (Permafrost Science), Vol 1, No 2, 1946
(111-118).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

CHEKOTILLO, A. M.

PA 160T45

USSR/Engineering - Heat, Transmission 11 May 50
Pipes, Gas

"Basic Property of the Temperature Regime in the
Ground Around Gas Main Pipes," A. M. Chekotillo,
Inst of Refrigeration imeni V. A. Obruchev, Acad
Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LXXII, No 2

Curves show drop in temperature of gas in pipes
and temperature difference between gas and
ground as functions of distance (up to 25 km)
from compressor station. Includes chart of iso-
therms around underground pipe. Submitted
13 Mar 50 by Acad V. A. Obruchev.

160T45

CHEKOTILLO, A. M.

"Deformation of Ice Storehouses," Inst. of Frost Study im. V.A.Obruchev,
Priroda, 42, No.4, pp 94-97, 1953

Describes the plan of the ice storehouses located at the Shcherbakov fruit and vegetable base of Mosglavrestoran (Moscow Main Admin of Restaurants), which are made of ice 2 m. thick covered with sawdust 1 m. thick. States that the first exptl ice isothermal storehouses were constructed in the winter of 1939-40. Photographs show the sagging of the storage galleries and their mode of construction.

261T90

CHEKOTILLO, A.M.

USSR/ Miscellaneous - Cold storage

Card 1/1 Pub. - 17/36

Authors : Krylov, M. M., and Chekotillo, A. M.

Title : Storage of fruit and vegetables in ice houses

Periodical : Priroda 2, 95-98, Feb 1954

Abstract : The problems of storing fresh vegetables, fruit, meat, fish and
dairy products in ice houses are discussed. Tables; drawings;
illustration.

Institution : Acad. of Sc., USSR, The V. A. Obruchev Institute of Refrigeration

Submitted :

CHEKOTILLO, A.M.

USSR/Agriculture - Irrigation

Card 1/1 : Pub. 86 - 20/38

Authors : Chekotillo, A. M., Cand. Tech. Sci.

Title : Experience with winter irrigation

Periodical : Priroda 43/12, page 103, Dec 1954

Abstract : An account is given of tests made by flooding a growing crop twice during the summer, flooding during the winter without watering during the summer, and a combination of both methods. The results showed that most benefit was derived from the winter flooding. Table.

Institution:

Submitted :

CHEKOTILLO, A.M.

CHEKOTILLO, A.M., starshiy nauchnyy sotrudnik.

Cold storage warehouses for agricultural products. Trudy LTIKHP 10:103-107 '56. (MIRA 10:6)

1. Institut merslotovedeniya imeni V.A. Obrucheva Akademii nauk SSSR.
(Farm produce--Storage) (Cold storage warehouses)

CHEKOTILLO, A.M.
CHEKOTILLO, A.M., kand.tekhn.nauk, otvetstvennyy red.

[Abstracts of reports; based on papers received by the Organization Committee of the 1956 Conference on frozen ground] Tezisy i plany dokladov; po postupivshim v Orgkomitet materialam k soveshchaniyu 1956 g. po merslotovedeniiu. Moskva. No.2. [Reports on the general problem of frozen ground] Doklady po obshchemu merslotovedeniiu. 1956. No.3. [Reports on frozen ground engineering] Doklady po inzhenernomu merslotovedeniiu. 1956. 29 p. No.4. [Reports on the physics and mechanics of frozen ground] Doklady po fizike i mekhanike merslykh gruntov. 1956. 19 p. (MIRA 11:2)

1. Akademiya nauk SSSR. Institut merslotovedeniya.
(Frozen ground)

CHENKOTILLO, A.M., kand. tekhn. nauk; otvetstvennyy red.

[Abstracts and outlines of reports; based on papers received by the Organization Committee for the 1956 Conference on Frozen Ground Studies] Tезисы и планы докладов; по поступившим в Оргкомитет материалам к совещанию 1956 г. по мерзлотоведению. Pt.1.
[Principal reports] Osnovnye doklady. Moskva, 1956. 24 p.

(MIRA 11:7)

1. Akademiya nauk SSSR. Institut merzlotovedeniya.
(Frozen ground)

CHEKOTILLOV, A.M., kandidat tekhnicheskikh nauk.

Variation of soil temperature in the Moscow area. Priroda 45 no.8:
114-115 Ag '56. (MIRA 9:9)

1. Institut merslotevedeniya imeni V.A.Obrucheva Akademii nauk
SSSR, Moskva.
(Moscow Province--Soil temperature)

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1,
p 170 (USSR) 15-57-1-1062

AUTHOR: Chekotillo, A. M.

TITLE: Permafrost Studies in Foreign Countries up to 1955
(A Survey of the Literature) [Merslotovedeniye za
rubeshom k 1955 g. (Literaturnyy obsor)]

PERIODICAL: Materialy k osnovam ucheniya o merslykh zonakh zem.
kory, Nr 3, Moscow, AN SSSR, 1956, pp 186-229

ABSTRACT: The building of the Alcan Highway in 1942 and other
construction again attracted the attention of Soviet
students of permafrost to foreign studies in this
field, which had developed, as in the USSR, during
utilization of regions of permanently frozen soil.
Seasonally frozen ground, despite its great extent, is
not considered here. Therefore, only the USSR and the
USA are countries in which the study of permafrost has

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15-57-1-1062

Permafrost Studies in Foreign Countries (Cont.)

been developed and has acquired obvious value, especially in solving numerous engineering problems. European countries, except Iceland, all lie outside the region of permafrost, and the study of this subject in these countries has not acquired the status of an independent branch of science. In such countries, study is confined to individual, sometimes very valuable, investigations of seasonally frozen ground. The author furnishes data on the survey by the American Blake on the distribution of permafrost around the globe. Prior to the Second World War, studies in permafrost in foreign countries were meager. But this situation began to change quickly when the U. S. Army began to construct huge military bases, airfields, highways, and other structures in Alaska and in northern Canada. Numerous deformations and destroyed structures, built on frozen soil, impelled the U. S. government to create a broad program of scientific research organizations for studying the properties of frozen ground and the problems of building on such ground in arctic and subarctic regions. All this work was done under the guidance of the Corps of Card 2/3

Permafrost Studies in Foreign Countries (Cont.)

15-57-1-1062

Engineers of the U. S. Army. Numerous papers were published by these organizations, especially on engineering problems, to which Americans ascribe considerable importance. Examples are given of solutions to engineering problems worked out in the U.S.A. and in Canada. The author supplies a list of foreign literature on permafrost, published chiefly in the last five or six years. The bibliography contains 239 references.

Card 3/3

A. M. Ch.

CHEKOTILLO, A.M.
CHEKOTILLO, A.M.

Coordination conference on the study of permafrost. Izv. AN SSSR.
Ser. geog. no.4:138-139 J1-Ag '57. (MIRA 11:1)
(Frozen ground)

CHEKOTILLO, A.M.

GRAVE, M.A. [translator]; TOLSTOV, A.N. [translator]; USOVA, T.V. [translator];
CHEKOTILLO, A.M. [translator]; YEFIMOV, A.I., red.; ZNAMENSKAYA, V.K.,
red.; GRIBOVA, M.P., tekhn. red.

[Frozen ground of Alaska and Canada; a collection of articles]
[Translated from the English] Morskiye gornye porody Alaski i
Kanady; sbornik statei. S predisl. A.I. Efimova. Moskva. Izd-vo
inostr. lit-ry, 1958. 262 p. (MIRA 11:7)
(Alaska—Frozen ground) (Canada—Frozen ground)

CHEKOTILLO, A.M.

Annotations on foreign frozen ground studies. Trudy Inst. merzl.
AN SSSR 14:155-163 '58. (MIRA 11:8)
(Bibliography--Frozen ground)
(Bibliography--Soil mechanics)

CHEKOTILLO, A.M.

Conference dedicated to the 20th anniversary of the Planning Office
of Noril'sk Combine. Prom. stroi. 36 no.12:43 D '58.

(MIRA 12:1)

(Noril'sk--Construction industry)

CH EKO TILLO, A.M.

18(10): 3(5)	FRASE I BOOK EXPLOITATION	SOV/2843	
	Sovetskoye po razbival'nym sposobam fundamentostroyeniya na vostochnom razbival'nym sposobam		
	Trudy... (Transactions of the Conference on Efficient Methods of Building Foundations on Permafrost Soils) Moscow, Gosstroyizdat, 1959. 131 p. Errata slip inserted. 1,200 copies printed.		
	M. of Publishing House: M. N. Borsheverstskaya; Tech. M.: Ye. L. Nemina.		
	PREFACE: This book is intended for construction engineers, indu- trial planners and builders.		
	CONTENTS: This book contains reports originally read in Voronezh in 1959 on experience gained in planning and building foundations in permafrost regions of the USSR. The reports were prepared for publication in the NIIOGP (Scientific Research Institute for the Study of Foundations and Underground Structures). The Introduction was written by Professor V. G. Bulychet. No References are given.		
	1. <u>Shchegolev, V. P.</u> Construction Conditions and the Explo- itation of Mining Enterprises in the Pechora Coal Basin	47	
	2. <u>Shchegolev, V. P.</u> Construction of Industrial Plants on Permanently Frozen Ground With Subsequent Settling	56	
	3. <u>Shchegolev, V. P.</u> Designing Pile Foundations Under Permafrost Conditions	58	
	4. <u>Shchegolev, V. P.</u> Special Characteristics of Foundation Building in the City of Igarka	64	
	5. <u>Shchegolev, V. P.</u> and <u>V. M. Yodolanskaya</u> . Methods of Restoring the Deformed Principal Buildings in Voronezh	67	
	6. <u>Shchegolev, V. P.</u> Analysis of Work and Computing the Rein- forced Concrete Frame Foundations and Frame Works, Taking Into Account Uneven Settling of the Bearing Ground	75	
	7. <u>Shchegolev, V. P.</u> , and <u>V. M. Sokolova</u> . New Data on Frost Heaving of Foundations	100	
	8. <u>Shchegolev, V. P.</u> Decreasing the Depth of Foundation Laying by Keeping the Ground in a Frozen State	109	
	9. <u>Shchegolev, V. P.</u> Frost Heaving of Ground and Foundations (discussion)	113	
	10. <u>Shchegolev, V. P.</u> Non-Soviet Experience in Building Foundations on Permanently Frozen Ground	119	
	11. <u>Shchegolev, V. P.</u> Maximum Thawing of Perennially Frozen Ground Under Heated Buildings (two-dimensional solution)	124	
	12. <u>Shchegolev, V. P.</u> Settling of the Foundations of Industrial Structures of the Voronezhskiy Combine	127	
	AVAILABLE: Library of Congress		

18(10): 3(5)
1-18-60

Card 1/4

BARANOV, I.Ya., otv.red.; TSYTOVICH, N.A., otv.red.; CHEKOTILLO, A.M.,
otv.red.; BANKVITSER, A.L., red.isd-va; MAKUNI, Ye.V., tekhn.red.

[Studies in permafrost construction engineering] Materialy po
inzhenernomu merslotovedeniyu. Moskva, Izd-vo Akad.nauk SSSR,
1959. 199 p. (MIRA 12:8)

1. Mashduvedomstvennoye soveshchaniye po merslotovedeniyu.
7th, Moscow, 1956.
(Building--Cold weather conditions)

14(10)

AUTHOR:

Chekotillo, A., Engineer

SOV/29-59-2-35/41

TITLE:

Low-temperature Accumulators (Akkumulyatory kholoda)

PERIODICAL:

Tekhnika molodezhi, 1959, Nr 2, pp 37-38 (USSR)

ABSTRACT:

In the present article, the author reports on the possibility of using ice as building material. In 1939-40, an experimental building of ice was erected for storing vegetables on the site of the Base Mosplodoovoshchtorg near the Station Severnaya on the Northern Railroad. This building was erected according to a plan by M. M. Krylov, Scientific Collaborator of the Institut merzlotovedeniya imeni V. A. Obrucheva AN SSSR (Institute of **Permafrost** imeni V. A. Obruchev AS USSR). After investigating for 20 years, M. M. Krylov came to the conclusion that natural cold in form of ice store-rooms can be utilized for storing fruit and vegetables. But ice as building material did not only require a suitable construction method. A way had also to be found to protect this peculiar material from melting. Cheap material available in large quantities such as sawdust, peat, moss, and slag, was used to protect the ice building. It was found that in the central section of the country, under the weather conditions

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Low-temperature Accumulators

SOV/29-59-2-35/41

prevailing in these latitudes, a protective layer of sawdust 70-80 cm thick was sufficient even in the hottest summer. To avoid the melting of the ice from inside Krylov suggested an ice-salt cooling. In filling up the ice-salt mixture, the temperature inside the building can be regulated and kept on the required level. A temperature of -1° is suitable for most sorts of fruit and vegetables. To reduce the admission of warm air during loading the entrance into the building was constructed as a sluice in form of a two-piece room. This room is also conditioned with an ice-salt mixture. In spite of all precautionary measures, such building requires an annual overhaul, and a general repair every 5-7 years. The colored insert sheet adjoining shows an ice storehouse designed according to the project by Krylov with a capacity of 250 tons, the arrangement of the corridor and the store-rooms. The basic condition for the successful erection of an ice building is a temperature of -5° and a sufficient water stock. The ice-houses can be built without sinking into the ground, especially in rough climate. Yet their sinking into the ground increases their thermal resistance. For this reason, the type projects published by Soyuzgiprotorg provide for the

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Low-temperature Accumulators

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sinking of ice-houses of any dimensions. Experience has shown that such ice store-houses prove a complete success in storing fruit, vegetables, potatoes, fresh meat (in the Trust "Len-ryba"), fats, smoked goods, fish products, milk and dairy products. Small fruit can be stored fresh for 10-15 days. Experiments made by the Mosglavrestoran have shown that fresh vegetables were still fresh after 15 days and the weight loss was no more than 1-1.5 %. There is 1 figure.

ASSOCIATION: Dal'nevostochnyy institut Akademii stroitel'stva i arkhitektury ([Soviet] Far East Institute of the Academy of Building and Architecture)

Card 3/3

CHEKOTILLO, A.M., inzh.

Thawing the areas designated for foundations before starting
building operations in permafrost. Prom.stroi. 37 no.10:
54-55 0 '59. (MIRA 13:2)

1. Dal'nevostochnyy nauchno-issledovatel'skiy institut po
stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR.
(Frozen ground) (Foundations)

CHEKOTILLO, A.M.; TSVID, A.A.; MAKAROV, V.N.; STOTSENKO, A.V., prof.,
doktor geograf.nauk, otv.red.; OVECHKINA, L.S., red.; FILATOVA,
G.M., tekhn.red.

[Icings in the U.S.S.R. and their control] Naledi na territorii
SSSR i bor'ba s nimi. Blagoveshchensk, Amurskoe knizhnoe izd-vo,
1960. 204 p. (MIRA 13:12)

(Ice)

CHEKOTILLO, A.M.

Permafrost study or "geocrylogy?" Izv. AN SSSR. Ser. geog. no.6:
102-103 N-D '60. (MIRA 13:10)
(Frozen ground--Terminology)

TARGULYAN, Yuriy Oganessovich, kand. tekhn. nauk; CHEKOTILLO, A.M.,
kand. tekhn. nauk, retsentsent; SMIRNOV, A.P., inzh. red.;
CHVANOV, V.G., red. izd-va; GALAKTIONOVA, Ye.N., tekhn. red.

[Artificial structures over streams subject to icing] Iskustvennyye soorusheniia na vodotokakh s naladiami. Moskva, Nauchno-tekhn. izd-vo M-va avtomobil'nogo transp. i shosseinykh dorog RSFSR, 1961. 78 p. (MIRA 14:5)
(Road construction) (Ice on rivers, lakes, etc.)

CHEKOTILLO, A.M.

Laying depth of water pipes in the territory of Moscow as related
to seasonal freezing of ground. Mat. k osn. uch. o merz. zon.
zem. kory no.7:132-149 '61. (MIRA 14:7)
; (Moscow—Water pipes—Cold weather conditions)

[illegible]

CHEKOTILLO, K.A.

Characteristics of the circulation of intermediate waters in the
northern part of the Pacific Ocean. Trudy Inst.ocean. 45:113-122
'61. (MIRA 15:2)

(Pacific Ocean--Ocean currents)

CHEKOTILLO, K.A.

Vertical motions of water near the Pacific Coast of North America.
Trudy Inst.ocean. 45:123-129 '61. (MIRA 15:2)
(Pacific Ocean--Ocean currents)

CHEKOTILJO, K.A.

Calculation of vertical motions of water in the northwestern part
of the Pacific Ocean. Okeanologiya 1 no.6:1007-1019 '61.
(MIRA 15:1)

1. Institut okeanologii AN SSSR.
(Pacific Ocean--Hydrology)

CHEKOTILLO, K.A.

Intensity of the vertical transport of oceanic waters. Dokl.
AN SSSR 153 no.3:585-587 N '63. (MIRA 17:1)

1. Institut okeanologii AN SSSR. Predstavleno akademikom
V.V. Shuleykinym.

GRUZINOV, V.M.; CHEKOTILLO, K.A.

Dynamic characteristics of the subpolar front in the North Atlantic. Dokl. AN SSSR 153 no.6:1307-1309 D '63.

(MIRA 17:1)

1.*Gosudarstvennyy okeanograficheskiy institut. Predstavleno akademikom Ye.K. Fedorovym.

** for Gruzinov - can not verify if CHEKOTILLO is also
associated with this institute*

CHEKOTILLO, K.A.

Study of ocean currents, caused by turbulent stresses. Okeano-
logia 4 no.5:920-921 '64 (MIRA 18:1)

ACC NR: AP6030018

(N)

SOURCE CODE: UR/0020/66/169/005/1071/1074

AUTHOR: Chekotillo, K. A.

ORG: Institute of Oceanography, Academy of Sciences SSSR (Institut okeanologii Akademii nauk SSSR)

TITLE: Determination of the velocity field of quasi-stationary flow in the ocean

SOURCE: AN SSSR. Doklady, v. 169, no. 5, 1966, 1071-1074

TOPIC TAGS: ocean current, ocean dynamics, ocean property

ABSTRACT: An analytical method is developed and used to compute the flow velocity vectors over a square surface of the Pacific Ocean (30-40° N, 145-155° E) and at a depth of 1500 meters. The three-dimensional flow along the 148° East longitude is also obtained between 32° and 40° N. The system of equations for the flow indicates that it has two types of components; flow due to the horizontal pressure gradient in the Coriolis force field and flow produced by the vertical gradient of the Reynolds stress in the Coriolis force field. The first flow is ordered and covers the entire thickness of the ocean water. The second flow has a turbulent nature and is generated in relatively thin layers which adhere to the surface of the ocean and to its bottom. The surface flow has the same form as the one determined experimentally. The predominant values of flow velocities are grouped at about 10 cm/sec. At 1000 and

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UDC: 551.465.55

ACC NR: AP6030018

1500 meters the flow velocity, in general, is opposite to the surface flow. At 1000 meters the flow velocity is primarily from 1 to 5 cm/sec while at 1500 meters it is from 1 to 10 cm/sec. Presented by Academician Ye. K. Fedorov on 29 October 1965. Orig. art. has: 3 figures, 10 formulas.

SUB CODE: 08/ SUBM DATE: 22Oct65/ OTH REF: 003

Card 2/2

MEDOVAR, B.I., kand.tekhn.nauk; Prinimali uchastiye: LATASH, Yu.V., kand.
tekhn.nauk; MAKSIMOVICH, V.I., inzh.; CHEKOTILO, L.V., inzh.; POZRIN,
L.G., inzh.

Improvement of the weldability of austenite steels and alloys as a
result of remelting under electric slag. Svar. proizv. no.10:16-18
O '60. (MIRA 13:9)

1. Institut elektrosvarki im. Ye.O.Patona AN USSR.
(Heat-resistant alloys--Welding)

2

1-2310

22952
S/125/61/000/007/008/013
D040/D113

AUTHORS: Medovar, B.I.; Nazarenko, O.K.; Gurevich, S.M.; Chekotilo, L.V.; Povod, A.G.; and Pinchuk, N.I.

TITLE: Some peculiarities of electron-beam welding of austenitic steels and alloys

PERIODICAL: Avtomaticheskaya svarka, no. 7, 1961, 79-81

TEXT: In their introductory remarks, the authors state why the electron-beam welding of austenitic steels and alloys in a vacuum is superior to conventional welding. For experimental purposes, specimens of 3M 726 (EI 726) and 3M 696 (EI 696) heat-resistant austenitic steels and a nimonic-type 3M 437B (EI437B) alloy were welded by the electron-beam method. All these types contain boron and are prone to cracks in the area near the weld and in the weld metal, if the composition of the base metal is reproduced. Welding was carried out with an electron-beam gun designed by the Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton AS UkrSSR) using 120 mA, 20 kw current and a 35 m/hr welding speed. Metal

X

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22952

S/125/61/000/007/008/013
D040/D113

Some peculiarities of electron-beam ...

produced by the electron beam was completely sound, except in the case of EI726 steel where an increased boron content of 0.025% caused cracks to form in the base metal at the seam and sometimes even in the weld metal. The following conclusions are drawn: The new method of electron-beam welding in a vacuum must be used not only for refractory and chemically active metals but also for heat-resistant austenitic steels and alloys. The electron-beam method gives welds much more resistance to crystallization cracks than other known welding methods. It is to be expected that the use of filler wire will make the electron-beam process applicable to a wider range of austenitic steels and alloys, and that the dagger shape of the seam will necessitate some modification of the design of the joints. There are 6 figures. X

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvariki im. Ye. O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye. O. Paton AS UkrSSR)

SUBMITTED: April 17, 1961

Card 2/2

1-2300

29051

S/125/61/000/010/011/014
D040/D112

AUTHORS: Medovar, B.I.; Chekotilo, L.V.

TITLE: Tantalum - a new means for preventing hot cracks in welding
stable-austenitic steels and alloys

PERIODICAL: Avtomaticheskaya svarka, no. 10, 1961, 88-90

TEXT: It has been discovered in experiments at the Institut elektrosvariki im. Ye.O.Patona (Electric Welding Institute im. Ye.O.Paton) that alloying with tantalum increases the resistance to hot cracking in stable-austenite weld metal. For this discovery an author's certificate with a priority of November 14, 1960, has been awarded. The experiments were conducted with butt and T-weld specimens of austenitic heat-resistant ~~9H~~ 725 (08X15H37B5TP) (EI725 08Kh15N37V5T) alloy, 04X15H37B5T (04Kh15N37V5T) welding wire, and ANP-5 (ANF-5) fluoride flux, using a current of 300 amp and 28 v and a welding speed of 16 m/hr. Hot cracks formed when no tantalum was added; no cracks formed when a tantalum wire or tape (3.5% of the metal) was laid

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Tantalum - a new means

29051 S/125/61/000/010/011/014
D040/D112

along the welding line. Sound T-welds without hot cracks were obtained by the addition of 5% of tantalum, and the test fracture was dull and fibrous, which indicates disoriented structure; when no tantalum was added, a longitudinal through crack formed, and the fracture structure was coarse. The positive effect of tantalum introduced into an austenitic weld may be explained by its peculiar influence on the nature of the primary crystallization of the welding pool. It turns the oriented transcrystalline structure into a disoriented refined structure due to the formation of a large number of primary carbides serving as crystallization centers. Besides this, addition of tantalum into the welding pool apparently promotes the formation of primary intermetallic compounds which also have a powerful structure-refining effect. The positive effect of tantalum may be also utilized in welding heat-resistant austenitic nickel-base alloys. The article includes micrographs of the metal structure. There are 3 figures. [Abstracter's note: essentially complete translation].

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12300

1573

30230
S/125/61/000/011/010/012
DO40/D113

AUTHOR: Chekotilo, L.V.

TITLE: Electro-slag welding of heat-resistant austenitic EI787 steel

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1961, 82-84

TEXT: The EI787, or 08X15H35B3TMD (EI787, or 08Kh15N35V3TYuR) is a new steel grade used as a substitute for expensive 3M437, or X20H80T3 (EI437B, or Kh20N80T3) Ni-Cr alloy, mainly for parts of the high-temperature portion of gas turbines with an operating temperature of up to 750°C. The Institut elektrosvarki im. Ye.O.Patona (Electric Welding Institute im. Ye.O. Paton) has developed the technology of electro-slag welding EI787 steel parts, 160 by 80 mm in cross section area, using a plate electrode 10 mm thick and 80 mm wide. An A-550 (A-550) apparatus and a TShS-3000-1 (TShS-3000-1) transformer were used. A special device used for shaping the weld was made of copper and consisted of a massive uncooled pocket, water-cooled side backings, and outlet blocks. Welding was conducted with an

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30230

S/125/61/000/011/010/012
D040/D113

Electro-slag welding ...

АНФ-7 (ANF-7) flux (80% CaF_2 , 20% CaO). The flux was roasted for 1 hour at 800°C prior to welding. The slag pool was produced with the use of ПАМ-3 (PAM-3) aluminum-magnesium powder (10% of the flux weight). The following optimum process conditions were chosen: electrode feed rate - 5.4 m/hr, 1,700-1,900 amp welding current, 30 v idle run voltage, 27-28 v work voltage, 35 mm gap between the forgings, 250 to 300 g flux taken per weld (slag pool depth of 12-18 mm). The base metal and the welded joints were subjected to brief mechanical tests and to long-term endurance tests at 750°C . Before testing, the specimens were heat treated by holding for 8 hours at $1,170^\circ\text{C}$, 4 hours at $1,050^\circ\text{C}$ and 16 hours at 750°C and cooled in the open air. The long-term strength of the joints and base metal at 750°C was 26.5 to 29 kg/mm^2 and 32 kg/mm^2 respectively. A photograph shows the microscopic structure of a weld. There is 1 figure and 1 table. [Abstracter's note: Essentially complete translation]

Card 2/2

MEDOVAR, B.I., doktor tekhn.nauk; CHEKOTILO, L.V., inzh.

Single-pass submerged-arc welding of stabilized austenitic steel.
Mashinostroenie no.2:55-57 Mr-Ap '62. (MIRA 15:4)

1. Institut elektrosvarki im. Ye.O.Patona AN USSR.
(Electric welding)

36074
S/135/62/000/004/007/016
A006/A101

18.1111

AUTHORS: Medovar, B. I., Doctor of Technical Sciences, Chekotilo, L. V.,
Pinchuk, N. I., Lutsyuk-Khudin, V. A., Engineers

TITLE: Intercrystalline weld-adjacent cracks in welding austenite steels
and alloys

PERIODICAL: Svarochnoye proizvodstvo, no. 4, 1962, 17-21

TEXT: The authors, with the participation of engineer L. G. Puzrin, present some concepts on the formation of weld-adjacent intercrystalline cracks in flash-welding of austenite steels and alloys. During this process the following types of crack may arise: 1) crystallization cracks extending into the weld, or originating in the weld; 2) cracks along the fusion line at a distance from one to several grains; 3) cracks along the linear clusters of intermetallic and nonmetallic impurities. An effective means of preventing crystallization cracks in heat-resistant austenite steels, is to raise the boron content in the weld metal, for the purpose of increasing the quantity of boride eutectics, which is able to close-up weld-adjacent cracks. To prevent cracks which run at an equal distance from the fusion line, it is imperative not to

Card 1/2

Intercrystalline weld-adjacent cracks ...

S/135/62/000/004/007/016
A006/A101

allow superheating of the base metal and slow cooling in the temperature range of least resistance of the gamma-solid solution. Changes in the chemical composition of the steel or alloy, and, first of all, a reduced carbon content and the development of a second phase in the structure, should help to prevent the formation of weld-adjacent cracks of this type. To prevent cracks along linear clusters of impurities, it is necessary to use for stressed parts a metal that had been subjected to electric slag remelting in order to raise sharply its micro-homogeneity. Electric slag remelting is simultaneously a reliable means of preventing weld-adjacent crystallization cracks. There are 7 figures and 12 references: 9 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Institut elektrosvariki imeni Ye. O. Patona AN USSR (Institute of Electric Welding imeni Ye. O. Paton, AS USSR)

Card 2/2

12300
AUTHORS:

30687
S/125/62/000/005/003/010
D040/D113
Medovar, B.I., Chekotilo, L.V., Lutsyuk-Khudin, V.A., Pinchuk, N.I.,
and Puzrin, L.G.

TITLE:

Alloying heat-resistant austenitic steels, alloys and welds with
0.3 - 1.5% boron

PERIODICAL:

Avtomaticheskaya svarka, no. 5, 1962, 9-17

TEXT: The authors review data from their own experiments and from 22 Soviet and non-Soviet publications, and show that heat-resistant austenitic metal, alloyed with 0.3 - 1.5% boron, features increased long-term strength and crack-resistance. It is proved that metal containing boron as an alloying element has a two-phase (austenitic and eutectic boride) structure, which improves the properties of the metal. As revealed by Medovar and Lutsyuk-Khudin, ("Avtomaticheskaya svarka", no. 12, 1961), 0.015 - 0.020% B in steel leads to local fusion of the grain boundaries and to the growth of hot cracks which

S/125/62/000/005/003/010
DO40/D113

Alloying heat-resistant austenitic steels....

can subsequently cause local failure of welds; however, no austenitic steel samples with more than 0.35% B were prone to local failure in the weakness zone. According to data presented by Professor G.V. Estulin and Engineer L.Ye. Ivanova, boron greatly increases the heat-resistance of welds, e.g. addition of 0.41% B to X18H11B (Kh18N11B) type welds almost doubled the strength of welds in 100-hour tests at 650°C under a load of 20-36 kgf, or raised the pre-failure test time ten times. Similar results were obtained with X15H35 (Kh15N35) welds. Welding of steel with not more than 0.8 - 1.0% B caused no difficulties, but higher B content increased the cold cracking danger because of lowered plasticity and a large eutectic phase. It is advised to use pre-heating and moderated cooling in welding such steel. Electroslag remelting is suggested for improving the plasticity of boron-alloyed steel destined for fabrication with deformation, i.e. rolling. Conclusions: Alloying heat-resistant austenitic steels and welds with over 0.3 - 0.4% boron greatly increases the resistance to crystallization cracks, practically eliminates the danger of hot cracks appearing at the welds, produces very good welded joints in service at high temperature and loads, and considerably improves the heat

Card 2/3

Alloying heat-resistant austenitic steels....

S/125/62/000/005/003/010
·D040/D113

resistance of the metal. There are 7 figures and 3 tables.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.
Ye.O. Patona AN USSR (Electric Welding Institute "Order of the
Red Banner of Labor" im. Ye.O. Paton, AS UkrSSR)

SUBMITTED: January 14, 1962

Card 3/3

MEDOVAR, B.I., doktor tekhn.nauk; CHEKOTILO, L.V., inzh.

Manganese fluoride flux for the welding of austenitically stable steel and alloys. Svar. proizv. no.8:17-19 Ag '62. (MIRA 15:11)

1. Institut elektrosvarki im. Ye.O.Patona.
(Steel, Stainless--Welding)
(Flux, Metallurgy)

MEDOVAR, B.I., doktor tekhn.nauk; CHEKOTILO, L.V., inzh.; KUMYSH, I.I.,
inzh.

Fused carbide fluxes for the welding of austenitically stable
steels and alloys. Svar. proizv. no.8:19 Ag '62. (MIRA 15:11)

1. Institut elektrosvarki im. Ye.O.Patona.
(Flux (Metallurgy)) (Steel, Stainless--Welding)

ACCESSION NR: AT4013946

S/2659/63/010/000/0178/0185

AUTHOR: Medovar, B. I.; Chekotilo, L. V.; Lutsyuk-Khudin, V. A.; Pinchuk, N. I.; Puzrin, L. G.

TITLE: Boron alloys (over 0.3-0.4%) for high temperature austenite steel and weld seams

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprochny'm splavam, v. 10, 1963, 178-185

TOPIC TAGS: boron, boron containing alloy, austenite steel, high temperature steel, weld seam, weld metal

ABSTRACT: Austenite high-temperature steels alloyed with boron consist of two phases (austenite + boron component of eutectic origin) and are characterized by high tensile strength and elasticity. The use of boron alloys (over 0.3-0.4%) for high temperature austenite steel allows one to solve several important problems. The weld metal sharply increases stability against the formation of hot (crystalline) cracks. Hot cracks adjacent to the weld seams are completely eliminated during welding. The reliability of weld seams working under high temperature and loads is increased significantly by the exclusion of the causes of local brittle failure in the seam zone. The heat resistance of austenite steel and

Card 1/2

ACCESSION NR: AT4013946

weld seams is increased to a great extent. Investigations and experimental work at plants should be expanded so as to develop both new high-temperature austenite steel, as well as flow processes for the use of these steels for welding. Orig. art. has: 3 tables and 3 microphotographs.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute AN SSSR)

SUBMITTED: 00

DATE ACQ: 27Feb64

ENCL: 00

SUB CODE: ML

NO REF SOV: 015

OTHER: 007

Cord 1/3

MEDOVAR, B.I.; PINCHUK, N.I.; CHEKOTILO, L.V.

Increasing the maximum permissible concentrations of
phosphorus and silicon in stable austenitic welds. Dokl.
AN SSSR 150 no.3:541-543 My '63. (MIRA 16:6)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR.
Predstavleno akademikom B.Ye. Patonom.
(Welding)

MEDOVAR, B.I.; CHEKOTILO, L.V.; LUTSYUK-KHUDIN, V.A.; PINCHUK, N.I.; PUZRIN, L.G.

Addition alloys of boron (more than 0.3 - 0.4%) in austenitic heat-resistant steels and weldments. Issl. po zharoproch. splav. 10:178-185 '63. (MIRA 17:2)

I 26038-65 EWP(c)/EWP(k)/EWT(m)/EWP(h)/EWP(b)/T/EWA(d)/EWP(1)/EWP(w)/EWP(v)/EWT(d)
 EWP(t) Pf-4/Pad IJP(c) EM/MJW/JD/HM/HW S/0125/65/000/001/0043/0049
 ACCESSION NR: AP5005001

AUTHOR: Medovar, B. I. (Doctor of technical sciences); German, S. I. (Candidate of technical sciences); Latyshev, Yu. V. (Engineer); Chekotilo, L. V. (Engineer); Levenberg, N. Ye. (Engineer)

TITLE: Mechanized arc welding of austenitic, heat-resistant EI725(KhN35VTP) alloy

SOURCE: Avtomaticheskaya svarka, no. 1, 1965, 43-49

TOPIC TAGS: heat resistant alloy, nickel base alloy, electroslog melted alloy, alloy welding, weld metal property, EI725 alloy

ABSTRACT: Several series of experiments with submerged arc welding of EI725 austenitic, heat-resistant alloy (0.35—0.7% C, 1% max Mn, 14—16% Cr, 36—38% Ni, 4—6% W, 1.31—1.73% Ti, 0.005% B) have been conducted. Conventionally melted alloy was found to have a poor weldability because of the susceptibility of the weld and the weld adjacent zone to hot cracking. Therefore, electroslog melted alloy was used in form of large, 1340—1800 mm in diameter, rings (200 x 200 and 150 x 200 mm in cross section) and rolled plates 14 and 24 mm thick intended for the housing of a large gas turbine. Welding of electroslog melted alloy with electrode wire of base-metal composition yielded weld metal highly susceptible to hot cracking.

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L 26638-65

ACCESSION NR: AP5005001

Several other electrodes were tested. Satisfactory results were obtained with EP-235 (Kh15N35G7V7M3T) alloy wire (0.05% C, 0.14% Si, 7.78% Mn, 14.79% Cr, 36.07% Ni, 7.62% W, 1.95% Ti, and 3.28% Mo). Arc welding with this wire under ANF-17 and ANF-22 fluxes yielded weld metal with a satisfactory heat-resistance and ductility. A new TsT-22 electrode with EP-235-alloy core has also been developed for manual welding of EI725 alloy. The developed technology was successfully used for welding the gas turbine housing at the Kharkov Turbogenerator Plant. Orig. art. has: 8 figures and 3 tables. [MS]

ASSOCIATION: Institut elektrosvariki im. Ye. O. Patona, AN UkrSSR (Electric Welding Institute, AN UkrSSR); KhTGZ im. S. M. Kirova; TsNIChM im. Bardina

SUBMITTED: 12Aug64

ENCL: 00

SUB CODE: MM, 1B

NO REF SOV: 013

OTHER: 001

ATD PRESS: 3187

Cord 2/2

L 2638-66 EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(h)/EWA(c) M.W./ID/HW	
ACC NR: AP5022351	SOURCE CODE: UR/0135/65/000/009/0030/0032
AUTHOR: Medovar, B. I. (Doctor of technical sciences); Chekotilo, L. V. (Engineer); German, S. I. (Candidate of technical sciences)	
ORG: Electric Welding Institute im. Ye. O. Paton (Institut elektrosvarki); KhTZ im. S. M. Kirov	
TITLE: Fluoride-boric acid flux for arc and <u>electroslag welding</u> of austenitic steels and alloys	
SOURCE: Svarochnoye proizvodstvo, no. 9, 1965, 30-32	
TOPIC TAGS: austenitic steel, austenitic alloy, <u>heat resistant steel</u> , heat resistant alloy, arc welding, submerged arc welding, electroslag welding, steel welding, alloy welding, welding flux/ANF22 flux	
ABSTRACT: A fluoride-boric acid <u>flux</u> ANF-22 for submerged-arc and electroslag welding of heat-resistant austenitic steels and alloys and <u>boron</u> containing austenitic steels has been developed. The ANF-22 flux (the $\text{CaF}_2\text{-B}_2\text{O}_3$ system), for which Author Certificate No. 164777 was issued, consists of fluorite concentrate and boron oxide. The flux has good technological and metallurgical properties in a wide range of welding conditions (a voltage range of 26—40 v and a welding speed of 16 to 50 m/hr) and ensures good weld forming and satisfactory slag removal. No boron oxidation was observed in the weld metal when ANF-22 flux was used in submerged-arc	
Card 1/2	UDC: 621.791.048:669.15=194

L 2638-66

ACC NR: AP5022351

4
welding of boron-containing austenitic steels. In welding with boron-free Kh20N77E3Yu [Nimonic 80A] and Kh20N80T [Nimonic 75] filler wires under ANF-22 flux, the boron content in welds increased by 0.52 and 0.12%, respectively. Welds without hot cracks and with a notch toughness of 5—8 kgm/cm² and a high rupture strength also were obtained in austenitic, stainless, heat-resistant EI695P and EI725 steels. The flux also gave good results in electroslog welding of stainless, heat-resistant, nickel-chromium EI725, EI787, and other steels. Sound welds without cracks and other defects were obtained in welding, under an ANF-22 flux, a high-pressure gas-turbine housing, ribs, and other lap plates made of EI725 steel 14 mm thick. The high resistance to hot cracking is due to the formation in the weld metal of a two-phase structure consisting of austenite and a boride phase. Orig. art. has: 4 figures and 4 tables. [MS]

SUB CODE: MM, IE/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 000/
ATD PRESS: 4/24

Card

2/2

RP

L 10251-66 EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) IJP(c)
 ACC NR: AP5027467 JD/HM/HM SOURCE CODE: UR/0032/65/031/011/1388/1389

AUTHOR: Medovar, B. I.; Chekotilo, A. V.

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: A method of determining the susceptibility to brittle failure of complexly alloyed dispersion-hardenable austenitic alloys

SOURCE: Zavodskaya laboratoriya, v. 31, no. 11, 1965, 1388-1389

TOPIC TAGS: , nickel alloy, heat resistant alloy, chromium alloy, brittleness, mechanical failure, metal crystallization

ABSTRACT: A method of express evaluation of the brittle failure susceptibility of austenitic, age-hardenable, complex, nickel-chromium alloys is described. Cylindrical (40 mm in diameter) or flat (40 mm thick) test specimens with sharp stress concentrators (single-bevel grooves 5 mm deep, 15 deg angle, machined at a distance of 25 mm from one another) are welded using filler wire of the same composition as the alloy being welded (see Fig. 1). Formation of crystallization cracks is promoted by the use of a high-silicon flux. If the metal is susceptible to brittle failure, cracks in the base metal and grooves become visible either immediately after welding or after aging at 700-850C for 50 hr. The method makes it possible to classify

Cord 1/3

UDC: 620.178.2

L 10251-66

ACC NR: AP5027467

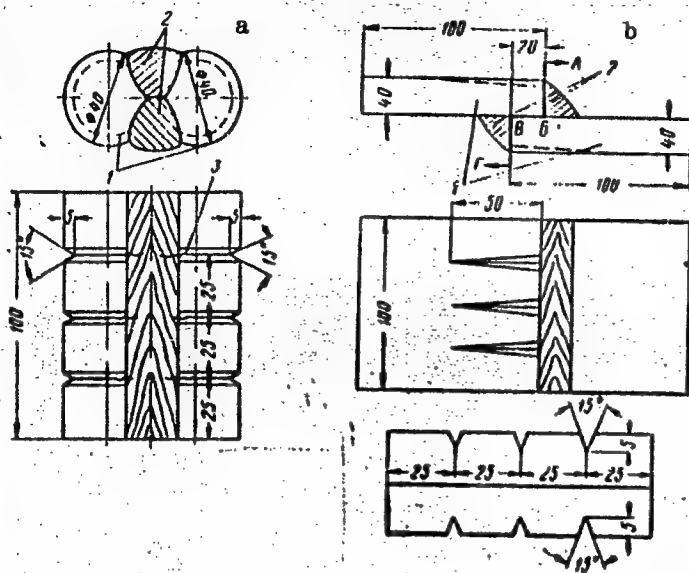


Fig. 1. Round (a) and flat (b) specimens for testing alloy for susceptibility to brittle failure

1 - Billet; 2 - welded seam; 3 - grooves (stress concentrators).

Card 2/3

L 10251-66

ACC NR: AP5027467

alloys, to determine their susceptibility to brittle failure depending on the alloy purity, heat treatment, grain size, etc., and, hence, to develop suitable methods for prevention of the brittle failure. Orig. art. has: 2 figures. [MS]

SUB CODE: 11/ SUBM DATE: none/ ATD PRESS: 4/6/

PC
Card 3/3

L 21257-66 EWT(m)/EFT(n)-2/EWP(v)/T/EWP(t)/EWP(k) 101(G) 30/HH/HW/JG
ACC NR: AP6008072 SOURCE CODE: CZ/0065/66/000/001/0055/0063

AUTHOR: Medovar, B. I.; Pavlychuk, G. A.—Pavlijcuk, G. A.; Chekotilo, L. V.—
Chekotilo, L. V. 44 B

ORG: Institute for Electric Welding im. Ye. O. Paton; Kiev (Institut elektrosvarki)

TITLE: The alloying of high temperature resistant Nimonic type Ni-alloys by boron

SOURCE: Kovove materialy, no. 1, 1966, 55-63 4455 1 4 27 5-27

TOPIC TAGS: nickel base alloy, cobalt base alloy, boron containing alloy, weldability, plasticity

ABSTRACT: The article deals with the investigation of the effect of high boron content on the properties of nickel- and cobalt-based alloys conducted at the Institute of Electric Welding im. Ye. O. Paton. The investigation embraced alloys with 0.005, 0.45, and 0.70 per cent of boron and without it. The alloys were thermally treated and subjected subsequently to mechanical, strength and weldability tests. The results of the tests are given in tabulated form. They show that the alloying of the austenitic Cr-Ni alloys and welded joints of the type Nimonic by boron (0.3 to 0.7 per cent) seems to heighten their strength and high temperature stability, and at the same time maintaining acceptable plasticity and notch toughness. The austenitic boronic structure consists of two phases which makes these alloys unprone to hot cracking in the weld metal and in the welded zone while fusion welded. Owing to

Card 1/2 46

L 21257-66

ACC NR: AP6008072

good weldability and high strength the nickel-base alloys with different alloying elements and boron content over 0.3 per cent are very perspective for large-scale application in technical practice. Orig. art. has: 4 figures, and 4 tables. [JKP]

SUB CODE: 11/ SUBM DATE: 26Jun65/ CTH REF: 002/ SOV REF: 003/

Card

2/2

L 35825-66 EWP(k)/EWT(m)/T/EWP(v)/EWP(t)/ETI IJF(c) JD/HM

ACC NR: AP6021827

SOURCE CODE: UR/0413/66/000/012/0136/0136

INVENTOR: Medovar, B. I.; Chakotilo, L. V.; Pinchuk, N. I.

43
B

ORG: none

TITLE: Welding wire. ⁴Class 49, No. 183042 ¹⁸

SOURCE: Isobreteniya, promyshlennyye obrasty, tovarnyye znaki, no. 12, 1966, 136

TOPIC TAGS: welding, steel, austenitic steel, ~~oxidation~~ ^{corrosion} resistant steel, ~~welding~~ welding, welding rod, welding wire, weld

ABSTRACT: This Author Certificate introduces a filler or electrode wire for welding oxidation-resistant, austenitic, silicon-rich steels. ⁶The wire contains up to 0.1% carbon, 2.5—3.0% silicon, up to 1.5% manganese, 24—27% chromium, ¹⁸18—21% nickel, ²¹0.02% max sulfur, 0.03% max phosphorus and 0.45—0.65% boron. ⁷Boron increases the weld resistance against carburization, hot cracking, and sigma-phase formation. [ND]

SUB CODE: 13/11/SUBM DATE: 06Aug64/ ATD PRESS: ^{FR}5036 ¹⁶

Card 1/1

UDC: 621.791.042

L 35823-66 EWP(k)/EWT(m)/T/EWP(v)/EWP(t)/ETI IJP(c) JD/HM

ACC NR: AP6021799

(N)

SOURCE CODE: UR/8413/66/000/012/0063/0063

INVENTOR: Medovar, B. I.; Stroyev, V. S.; Chetillo, L. V.; Tarkhov,
N. A.; Pinchuk, N. I.

40
B

ORG: none

TITLE: Electrode for welding oxidation-resistant steels. Class 21, No. 182814 [announced by the Electric Welding Institute im. Ye. O. Paton (Institut elektrosvarki)]

SOURCE: Izobrateniya, promyshlennyye obraboty, tovarnyye znaki, no. 12, 1966, 63

TOPIC TAGS: steel, ~~steel~~ welding, oxidation-resistant steel, welding electrode

ABSTRACT: This Author Certificate introduces an electrode for welding oxidation-resistant steels. The electrode coating contains 31% marble, 27% fluorspar, 6.5% manganese, 1.5% aluminum, and 14% ferrosilicon. To increase the weld resistance against carburization, hot cracking, and oxidation, 12% ferroboreon and 8% dolomite are added to the coating composition. [ND]

SUB CODE: M11,0/SUBM DATE: 26 May 65/ATD PRESS: 5136

Card 1/1

L 08117-67 EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k) IJP(c) JN/m...
 ACC NR: AP6032034 SOURCE CODE: UR/0114/66/000/007/00211

AUTHOR: Chekotilo, L. V. (Candidate of technical sciences); German, S. I. (Candidate of technical sciences); Levenberg, N. Ye. (Engineer) 53
 52
 8

ORG: none

TITLE: Electric slag welding of austenitic heat resistant alloy EI725 (MnN35VTR) 18

SOURCE: Energomashinostroyeniye, no. 7, 1966, 27-29

TOPIC TAGS: arc welding, heat resistant alloy, austenitic steel

ABSTRACT: The article reports an investigation of the electric slag welding of alloys EI725, EI612, and others which contain chromium, nickel, tungsten, and titanium; some of the alloys also contain molybdenum, niobium, boron, and aluminum. A detailed chemical analysis of the alloys is given in a table. Samples of alloys EI725 and EI612 were welded with a plate type electrode and with two wire electrodes. A ANF-8 flux was used. The article gives microphotos of the welding seams obtained. A further table lists the results of tests of the physical and mechanical properties of the seams. It was found that the heat resistance of welded joints in EI725 alloy, made with electric slag welding using a plate type electrode and a type EP235 wire is from 80 to 90% of the heat resistance of the base metal. The work was in the direction of Doctor of Technical Sciences, Professor B. I. Medovar

UDC: 6251.7.669.1.791

G. art.

ACC NR: AT6034448

Kh25N20S2, with amounts of boron from 0.3-0.7% is an effective means of increasing their strength and heat resistance, while retaining a high degree of long-term ductility; 2) these steels, alloys, and welded joints, thanks to their two-phase austenite-boride structure, have no tendency toward formation of hot cracking. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 002/ OTH REF: 002

Card 2/2

ACC NR: AP7001930

SOURCE CODE: UR/0125/66/000/0012/0052/0057

AUTHOR: Medovar, B. I.; ~~XXXXXXXXXX~~ Chekotilo, L. V.; Pavliychuk, G. A.;
Us, V. T.; Tabidze, A. I.

ORG: Electric Welding Institute im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki
AN UkrSSR)

TITLE: Weldable boron-bearing austenitic steels and alloys

SOURCE: Avtomaticheskaya svarka, no. 12, 1966, 52-57

TOPIC TAGS: ^{weldability,} chromium nickel boron steel, austenitic steel, weldable austenitic
steel, niobium containing steel, tungsten containing steel, titanium containing
steel, Kh18N12B2R1 austenitic steel / Kh615N24V4T2R1 austenitic steel

ABSTRACT: Several new weldable chromium-nickel austenitic steels and alloys con-
taining up to 0.70% boron have been developed in a joint effort by the
Electric Welding Institute im. Ye. O. Paton, TsNIITMASH, TsNIChM, the
Moscow Experimental Welding Plant, and Orgenergostroy. Heat-resistant
steels Kh18N12B2R1 or EP531 (0.10% max carbon, 17-19% chromium,
11-13% nickel, 1.8-2.3% niobium, and 0.40-0.70% boron) and
Kh15N24V4T2R1, or EP467 (0.08% max carbon, 14.5-16.5% chromium, 23-25%
nickel, 4-5% tungsten, 1.5-2.2% titanium, and 0.40-0.70% boron) are
tube materials intended primarily for steam pipelines and superheaters.

Card 1/2

UDC: 621.791.011:669.15-194

ACC NR: AP7001930

Both steels have satisfactory heat resistance (EP467 steel in stress-rupture tests at 650C under a stress of 28 kg/mm² failed after 5909 hr at an elongation of 14.0% and a reduction of area of 19.9%), satisfactory weldability, and low susceptibility to local fractures in the weld-adjacent zone. Boron-bearing nickel-base alloys were developed as cast alloys for parts operating at temperatures up to 200C. Cast Kh20N77T3YR alloy containing 0.70% boron had at 800C a tensile strength of 64.5 kg/mm², a yield strength of 64.1 kg/mm², an elongation of 1.76%, a reduction of area of 3.0%, and a notch toughness of 1 mkg/cm² compared to 46.0 kg/mm², 39.4 kg/mm², 8.2%, 16.0%, and 20.6 mkg/cm² for the same alloy but without boron. In stress-rupture tests at 800C under a stress of 29 kg/mm², the alloy with 0.70% boron failed after 26 hr compared to 3 hr for alloy without boron. Boron improved significantly the weldability of oxidation-resistant steels Kh25N20S2 and Kh18N35S3 without affecting the oxidation resistance at temperatures up to 1000C. Kh18N10BR(EP381) and Kh13G30NR1(EP537) steels, intended for operation in chloride solutions, are highly resistant to stress corrosion. Specimens of these steels were removed and amassed after 4150—4300 hr test in a boiling 42% solution of magnesium chloride under a stress of 27.3—27.6 kg/mm² (90% of yield strength), while the specimens of standard K18N10T and Kh18N10B steels failed after 8—24 and 2—18 hr, respectively. Orig. art. has: 10 figures and 8 tables.

SUB CODE: 11/ SUBM DATE: 23May66/ ORIG REF: 006/ OTH REF: 001/ ATD PRESS: 5111

Card - 2/2

CHEKOV, I.M.

Machine for grinding and polishing strips, bands and sheets.

Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekhn.

inform. 16 no.10:43-45 '63.

(MIRA 16:11)

Stapled and
being rerun.

L 08117-67

ACC NR: AP6032034

EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k)

IJP(c)

JD/HM/JG

SOURCE CODE: UR/0114/66/000/007/0027/0029

AUTHOR: Chekotilo, L. V. (Candidate of technical sciences); German, S. I. (Candidate of technical sciences); Levenberg, N. Ye. (Engineer)

ORG: none

53
52
8

TITLE: Electric slag welding of austenitic heat resistant alloy EI725 (KhN35VTR)

SOURCE: Energomashinostroyeniye, no. 7, 1966, 27-29

TOPIC TAGS: arc welding, heat resistant alloy, austenitic steel

ABSTRACT: The article reports an investigation of the electric slag welding of alloys EI725, EI612, and others which contain chromium, nickel, tungsten, and titanium; some of the alloys also contain molybdenum, niobium, boron, and aluminum. A detailed chemical analysis of the alloys is given in a table. Samples of alloys EI725 and EI612 were welded with a plate type electrode and with two wire electrodes. A ANF-8 flux was used. The article gives microphotos of the welding seams obtained. A further table lists the results of tests of the physical and mechanical properties of the seams. It was found that the heat resistance of welded joints in EI725 alloy, made with electric slag welding using a plate type electrode and a type EP235 wire electrode, is from 80 to 90% of the heat resistance of the base metal. The work was performed under the direction of Doctor of Technical Sciences, Professor B. I. Medovar.

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Candidate of Technical Sciences A. N. Safonnikov took part in the work. Orig. art.
has: 4 figures and 5 tables.

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